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GTTCCTGCCTGCGAACAATGCCAAGAAAGTGGAGAAGCGAGGCCCCAGGCGCTGGGTGGTGCTGGTGGCAGTGCTGTTCAGCTTCC
TCTTGCTCTCCCTCATGGCTGGCTTGCTGGTGTGGCACTTCCATTATCGGAATGTGCGGGTTCAAAAAGTCTTCAATGGCCATCTG
AGGATCACAAATGAGATCTTTCTGGATGCGTATGAGAACTCCACCTCCACAGAGTTTATCAGCCTGGCCAGCCAGGTGAAGGAGGC
GCTGAAGCTGCTGTACAATGAAGTCCCTGTCCTGGGTCCCTACCACAAGAAGTCGGCTGTAACTGCCTTCAGTGAGGGCAGTGTCA
TCGCCTACTACTGGTCAGAGTTCAGCATCCCCCCACACCTGGCAGAAGAGGTTGATCGCGCCATGGCTGTGGAGCGAGTTGTAACA
TTGCCACCCCGAGCACGGGCACTGAAATCCTTCGTGCTAACATCTGTGGTGGCCTTCCCCATTGACCCCAGAATGCTGCAGAGGAC
TCAGGACAACAGCTGCAGTTTTGCCCTGCATGCCCATGGTGCAGCAGTGACACGCTTCACTACCCCTGGCTTCCCCAACAGTCCCT
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CCCTGTGATGAGCATGGCAGTGACCTGGTCACCGTGTATGATAGCCTGAGCCCCATGGAACCCCACGCTGTGGTGCGGCTGTGTGG
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GCGGTGAGAGGTCCCAGTTTGTGGTGAGCAGCAACAGCAGCAAGATTACAGTCCACTTCCATTCTGATCACTCGTACACGGACACC
GGGTTCCTAGCTGAGTACCTCTCCTACGACTCCAACGACCCGTGCCCAGGGATGTTCATGTGCAAGACTGGACGGTGCATCCGAAA
GGAACTGCGCTGCGACGGCTGGGCAGACTGCCCGGATTATAGTGATGAGCGTTACTGCCGATGCAATGCCACCCACCAGTTCACGT
GCAAAAACCAGTTCTGCAAGCCCCTCTTCTGGGTCTGTGACAGTGTCAACGACTGTGGGGACGGAAGTGACGAGGAGGGCTGCAGC
TGTCCTGCTGGGAGTTTCAAGTGTTCCAATGGGAAGTGTCTCCCTCAGAGCCAGAAGTGTAATGGGAAGGACAACTGTGGAGATGG
GTCTGACGAGGCTTCATGTGACAGCGTGAATGTCGTCTCTTGCACCAAATATACCTACCGCTGCCAAAATGGCCTCTGTCTGAGCA
AGGGCAACCCTGAGTGTGATGGGAAGACGGACTGTAGCGATGGCTCCGATGAGAAAAACTGTGACTGTGGGCTGCGATCCTTTACC
AAACAGGCTCGCGTGGTTGGTGGCACGAATGCGGACGAGGGCGAGTGGCCCTGGCAGGTGAGCCTCCACGCCCTGGGCCAGGGCCA
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CAGATCACCCCACGAATGATGTGTGTGGGTTTCCTCAGTGGGGGTGTGGACTCCTGCCAGGGTGACTCTGGTGGCCCCTTGTCAAG
CGCGGAGAAAGATGGGCGAATGTTCCAGGCTGGTGTGGTGAGCTGGGGTGAAGGCTGCGCTCAGAGGAACAAGCCAGGCGTGTACA
CAAGGCTCCCTGTAGTTCGGGACTGGATCAAAGAGCACACTGGGGTATAGCAGCATGGACAGACAGCCGACCACAAACACCCACAG
GGATGCCCGACATGCACACCTGGATACAGGAGAGGAACACTGACGACATTTATGCTGTGGCCTCCCCCCCCCCAACACAACCCAGAC
TGTGAACTGCATCCTTAGGACTCAGAGTTCTTCCAAAGTGGGACCCCCTCAAGAGTTGGAGAGAGAACTTGCGTGCTAGCGGCCCA
GCCTGGGGGCAAGGGTTTGATGGCAGCCTTCCCCCTCTAGCCCTGAGCTGGGTGAAGATGATGCTGTCCCGGAGAGCTGCTTCCAA
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AAAAAAAAAA (SEQ ID NO:1)

MGSNRGRKAGGGSQDFGAGLKYNSRLENMNGFEEGVEFLPANNA
KKVEKRGPRRWVVLVAVLFSFLLLSLMAGLLVWHFHYRNVRVQKVFNGHLRITNEIFL
DAYENSTSTEFISLASQVKEALKLLYNEVPVLGPYHKKSAVTAFSEGSVIAYYWSEFS
IPPHLAEEVDRAMAVERVVTLPPRARALKSFVLTSVVAFPIDPRMLQRTQDNSCSFAL
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DSVNDCGDGSDEEGCSCPAGSFKCSNGKCLPQSQKCNGKDNCGDGSDEASCDSVNVVS
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KRSASGVQELKLKRIITHPSFNDFTFDYDIALLELEKSVEYSTVVRPICLPDATHVFP
AGKAIWVTGWGHTKEGGTGALILQKGEIRVINQTTCEDLMPQQITPRMMCVGFLSGGV
DSCQGDSGGPLSSAEKDGRMFQAGVVSWGEGCAQRNKPGVYTRLPVVRDWIKEHTGV
(SEQ ID NO:2)

FIGURE 1

underlined = deleted in targeting construct

[ ] = sequence flanking Neo insert in targeting construct

CATGGTAGACGGCTGCCCGGAGGGACCACGCGTCTGAGACCGGCGATCGGACCGCCAAAA
CCATGGGTAGCAATCGGGGCCGCAAGGCCGGAGGGGGCTCTCAGGACTTCGGCGCGGGAC
TCAAGTACAACTCCCGGCTAGAGAACATGAATGGCTTTGAGGAGGGTGTGGAGTTCCTGC
CTGCGAACAATGCCAAGAAAGTGGAGAAGCGAGGCCCCAGGCGCTGGGTGGTGCTGGTGG
CAGTGCTGTTCAGCTTCCTCTTGCTCTCCCTCATGGCTGGCTTGCTGGTGTGGCACTTCC
ATTATCGGAATGTGCGGGTTCAAAAAGTCTTCAATGGCCATCTGAGGATCACAAATGAGA
TCTTTCTGGATGCGTATGAGAACTCCACCTCCACAGAGTTTATCAGCCTGGCCAGCCAGG
TGAAGGAGGCGCTGAAGCTGCTGTACAATGAAGTCCCTGTCCTGGGTCCCTACCACAAGA
AGTCGGCTGTAACTGCCTTCAGTGAGGGCAGTGTCATCGCCTACTACTGGTCAGAGTTCA
GCATCCCCCCACACCTGGCAGAAGAGGTTGATCGCGCCATGGCTGTGGAGCGAGTTGTAA
CATTGCCACCCCGAGCACGGGCACTGAAATCCTTCGTGCTAACATCTGTGGTGGCCTTCC
CCATTGACCCCAGAATGCTGCAGAGGACTCAGGACAACAGCTGCAGTTTTGCCCTGCATG
CCCATGGTGCAGCAGTGACACGCTTCACTACCCCTGGCTTCCCCAACAGTCCCTACCCGG
CGCATGCCCGCTGCCAGTGGGTCCTGCGGGGGGACGCCGACTCTGTGCTGAGCCTCACCT
TCCGAAGCTTTGATGTCGCTCCCTGTGATGAGCATGGCAGTGACCTGGTCACCGTGTATG
ATAGCCTGAGCCCCATGGAACCCCACGCTGTGGTGCGGCTGTGTGGCACCTTCTCACCCT
CCTACAACCTGACTTTCCTCTCCTCCCAGAACGTCTTCCTTGTCACGCTGATAACCAATA
CTGACCGGCGACATCCTGGCTTTGAGGCCACTTTCTTCCAGCTGCCCAAGATGAGCAGCT
GTGGCGGCTTTTTGAGTGACACCCAAGGGACATTTAGCAGCCCCTACTATCCAGGCCACT
ACCCGCCCAACATCAACTGCACATGGAATATCAAGGTGCCCAACAACCGGAACGTGAAGG
TGCGCTTCAAACTCTTCTATCTGGTGGACCCCAACGTACCAGTGGGCTCCTGCACCAAGG
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TCCTAGCTGAGTACCTCTCCTACGACTCCAACGACCCGTGCCCAGGGATGTTCATGTGCA
AGACTGGACGGTGCATCCGAAAGGAACTGCGCTGCGACGGCTGGGCAGACTGCCCGGATT
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AGAGCCAGAAGTGTAATGGGAAGGACAACTGTGGAGATGGGTCTGACGAGGCTTCATGTG
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TGAGCAAGGGCAACCCTGAGTGTGATGGGAAGACGGACTGTAGCGATGGCTCCGATGAGA
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ATGCGGACGAGGGCGAGTGGCCCTGGCAGGTGAGCCTCCACGCCCTGGGCCAGGGCCACT
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ATGACAAAAATTTCAAGTACTCAGACTACACGATGTGGACGGCCTTCCTGGGTCTGCTGG
ACCAGAGCAAGCGCAGTGCCTCTGGGGTGCAGGAGCTGAAGCTCAAACGTATCATCACCC
ACCCTTCCTTCAATGATTTCACCTTCGACTATGACATCGCCTTGCTGGAGCTGGAGAAGT
CGGTGGAGTACAGCACCGTCGTGCGCCCCATCTGCCTGCCTGATGCTACCCATGTCTTCC
CTGCTGGCAAGGCCATCTGGGTCACAGGCTGGGGGCACACAAAAGAGGGAG[GTACCGGA
GCGCTGATCCTGCAGAAGGGTGAGATCCGTGTCATCAACCAGACCACCTGTGAGGACCTC
ATGCCGCAGCAGATCACCCCACGAATGATGTGTGTGGGTTTCCTCAGTGGGGGTGTGGAC
TCCTGC]CAGGGTGACTCTGGTGGCCCCTTGTCAAGCGCGGAGAAAG[ATGGGCGAATGT
TCCAGGCTGGTGTGGTGAGCTGGGGTGAAGGCTGCGCTCAGAGGAACAAGCCAGGCGTGT
ACACAAGGCTCCCTGTAGTTCGGGACTGGATCAAAGAGCACACTGGGGTATAGCAGCATG
GACAGACAGCCGACCACAAACACCCACAGGGATGCCCGACATGCACACCTGGATACAGGA
GAGGAACACTGACGACATTTATGCTGTGGCCTCCCCCCCCCAACACAACCCAGACTGTGA
ACTGCATCCTTAGGACTCAGAGTTCTTCCAAAGTGGGACCCCCTCAAGAGTTGGAGAGAG
AACTTGCGTGCTAGCGGCCCAGCCTGGGGGCAAGGGTTTGATGGCAGCCTTCCCCCTCTA
GCCCTGAGCTGGGTGAAGATGATGCTGTCCCGGAGAGCTGCTTCCAACTGTCATTGAGCT
CCCGGGAGCCCTATGGGAGGAGGGGCTCAGGGTCACTCTTTTCAGGAAGCGCCAGCCCTA
GGAACCCCAGAAAAGAGTGGTACCTAAGGCTGAAAT]TGTTTTGCTGTTGCCAGGGGTGG
GTATTTGAGAGTAAAACATTTTATTTCTTTTTAAAAAAAAAAAAAAAAAA

FIGURE 2A

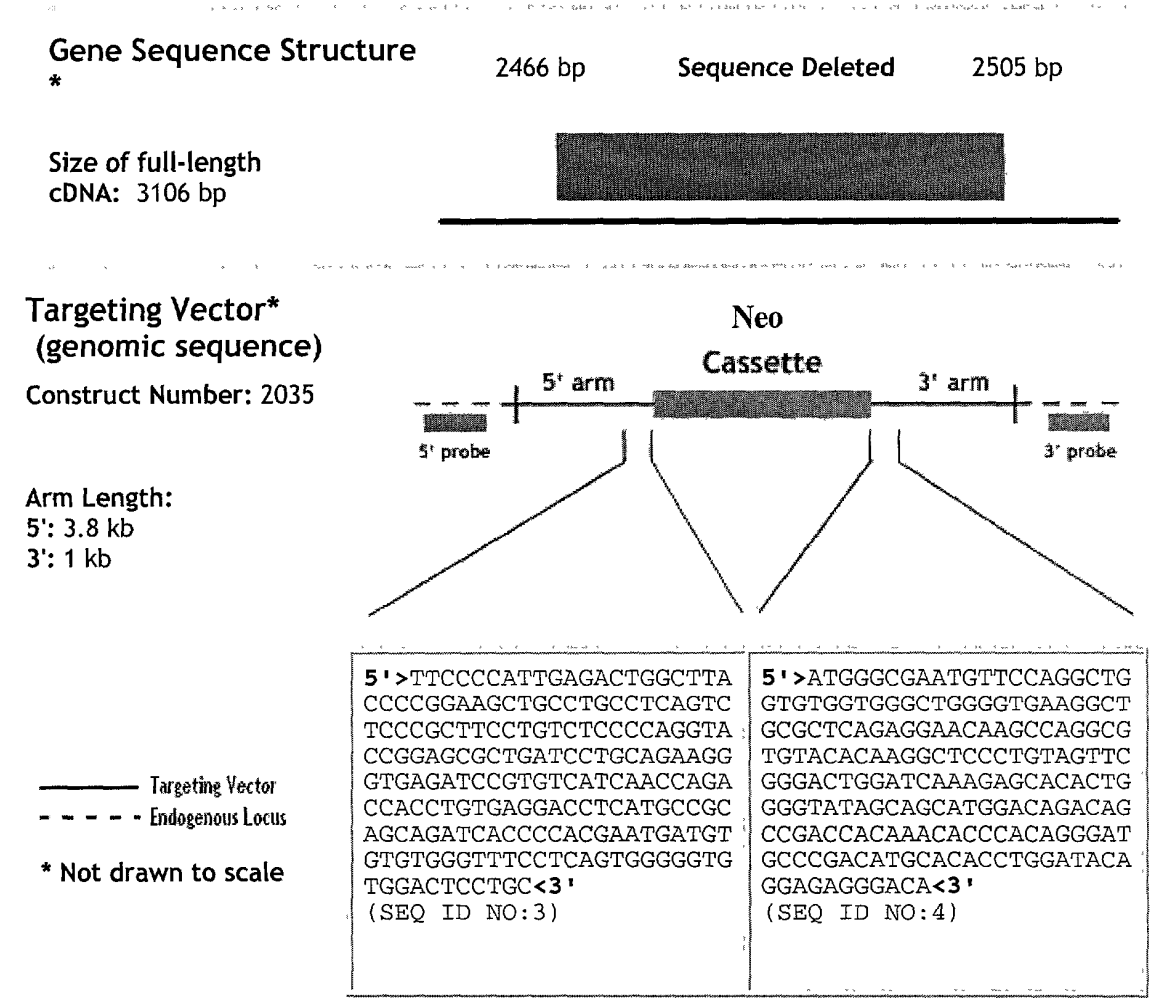
Gene Sequence Structure *
2466 bp
Sequence Deleted
2505 bp
Size of full-length cDNA: 3106 bp
Targeting Vector* (genomic sequence)
Construct Number: 2035
Arm Length:
5': 3.8 kb
3': 1 kb
Neo
Cassette
5' arm
3' arm
5' probe
3' probe
Targeting Vector
Endogenous Locus
* Not drawn to scale
5'>TTCCCCATTGAGACTGGCTTA
CCCCGGAAGCTGCCTGCCTCAGTC
TCCCGCTTCCTGTCTCCCCAGGTA
CCGGAGCGCTGATCCTGCAGAAGG
GTGAGATCCGTGTCATCAACCAGA
CCACCTGTGAGGACCTCATGCCGC
AGCAGATCACCCCACGAATGATGT
GTGTGGGTTTCCTCAGTGGGGGTG
TGGACTCCTGC<3'
(SEQ ID NO:3)
5'>ATGGGCGAATGTTCCAGGCTG
GTGTGGTGGGCTGGGGTGAAGGCT
GCGCTCAGAGGAACAAGCCAGGCG
TGTACACAAGGCTCCCTGTAGTTC
GGGACTGGATCAAAGAGCACACTG
GGGTATAGCAGCATGGACAGACAG
CCGACCACAAACACCCACAGGGAT
GCCCGACATGCACACCTGGATACA
GGAGAGGGACA<3'
(SEQ ID NO:4)

FIGURE 2B